I claim:

1. A circuit for lighting an electro-luminescent device, comprising:

a voltage source;

an electro-luminescent device having a high voltage connection and a grounded low voltage connection;

a switching converter comprising;

a first inductor having first and second ends, said first end of said first inductor being connected to said voltage source;

a second inductor having first and second ends, said first end of said second inductor being connected to said voltage source and to said first end of said first inductor;

a first switching device having a first end and a grounded second end, said first end of said first switching device being connected to said second end of said first inductor at a first junction;

a second switching device having a first end and a grounded second end, said first end of said second switching device being connected to said second end of said second inductor at a second junction;

an oscillating switch driver electrically connected to said first and second switching devices such that said first switching device is closed when said second switching device is open, and such that said first switching device is open when said second switching device is closed; and

a transformer device comprising;

a first input electroactive disk having first and second opposing electroded major faces and polarized in a thickness direction normal to said first and second opposing electroded major faces such that upon application of voltage across said first and second opposing electroded major faces, said first and second opposing electroded major faces deform radially;

said first electroded major face being electrically connected to said first junction;

said second electroded major face being electrically connected to said second junction;

a first output electroactive disk having first and second opposing electroded major faces and polarized in a thickness direction normal to said first and second opposing electroded major faces such that upon application of voltage across said first and second opposing electroded major faces, said first and second opposing electroded major faces deform radially;

said first electroded major face being electrically connected to said high voltage connection of said electro-luminescent device;

a constraint layer mechanically bonded between said first electroded major face of said first input electroactive disk and said first electroded major face of said first output electroactive disk such that said constraint layer at least partially constrains said radial deformation of said first electroded major face of said first input electroactive disk;

wherein said constraint of said radial deformation of said first electroded major face of said first input electroactive disk prevents said first electroded major face of said first input electroactive disk from radially deforming as much as said second electroded major face of said first input electroactive disk radially deforms such that there exists a difference between the

amounts of radial deformation of said first and second opposing electroded major faces of said first input electroactive disk.

2. The circuit of claim 1,

wherein said radial deformation of said first electroded major face of said first input electroactive disk radially strains said constraint layer;

and wherein said radial strain of said constraint layer is translated through said constraint layer to radially strain said first electroded major face of said first output electroactive disk;

and wherein said radial strain of said first electroded major face of said first output electroactive disk piezoelectrically generates an output voltage between said first electroded major face and said second electroded major face of said first output electroactive disk.

3. The circuit of claim 2,

wherein said difference between the amounts of radial deformation of said first and second opposing electroded major faces of said first input electroactive disk creates a shear strain in said first input electroactive disk.

4. The circuit of claim 3,

wherein said radial deformation of said first electroded major face of said first output electroactive disk is greater than said radial deformation of said second electroded major face of said first output electroactive disk such that there exists a difference between the amounts of radial deformation of said first and second opposing electroded major faces of said first output electroactive disk.

5. The circuit of claim 4,

wherein said difference between the amounts of radial deformation of said first and second opposing electroded major faces of said first output electroactive disk creates a shear strain in said first output electroactive disk.

6. The circuit of claim 5,

wherein said mechanical bond of said constraint layer is selected from the group of bonds formed through processes comprising cofiring together said constraint layer and said input and output electroactive disks, adhering together said constraint layer and said input and output electroactive disks, and combinations thereof.

7. The circuit of claim 6, wherein said transformer device further comprises:

a second input electroactive disk having first and second opposing electroded major faces and polarized in a thickness direction normal to said first and second opposing electroded major faces such that upon application of voltage across said first and second opposing electroded major faces, said first and second opposing electroded major faces deform radially; and

a first mechanical bond attaching said first electroded major face of said second input electroactive disk to said second electroded major face of said first input electroactive disk such that said second electroded major face of said first input electroactive disk at least partially constrains said radial deformation of said first electroded major face of said second input electroactive disk;

wherein said constraint on said radial deformation by said second electroded major face of said first input electroactive disk prevents said first electroded major face of said second input electroactive disk from radially deforming as much as said second electroded major

face of said second input electroactive disk radially deforms such that there exists a difference between the amounts of radial deformation of said first and second opposing electroded major faces of said second input electroactive disk.

8. The circuit of claim 7, wherein said transformer device further comprises:

a second output electroactive disk having first and second opposing electroded major faces and polarized in a thickness direction normal to said first and second opposing electroded major faces such that upon application of voltage across said first and second opposing electroded major faces, said first and second opposing electroded major faces deform radially; and

a second mechanical bond attaching said first electroded major face of said second output electroactive disk to said second electroded major face of said first output electroactive disk such that said first electroded major face of said second output electroactive disk at least partially constrains said radial deformation of said second electroded major face of said first output electroactive disk;

wherein said difference between the amounts of radial deformation of said first and second opposing electroded major faces of said first output electroactive disk creates a shear strain in said first output electroactive disk;

and wherein said radial deformation of said second electroded major face of said first output electroactive disk radially strains said first electroded major face of said second output electroactive disk via said third mechanical bond;

and wherein said radial deformation of said first electroded major face of said second output electroactive disk is greater than a radial deformation of said second electroded major face of said second output

electroactive disk such that there exists a difference between the amounts of radial deformation of said first and second opposing electroded major faces of said second output electroactive disk;

and wherein said difference between the amounts of radial deformation of said first and second opposing electroded major faces of said second output electroactive disk creates a shear strain in said second output electroactive disk.

9. The circuit of claim 8,

wherein said direction of polarization of said first input electroactive disk is opposite said direction of polarization of said second input electroactive disk.

10. The circuit of claim 9,

wherein said direction of polarization of said first output electroactive disk is opposite said direction of polarization of said second output electroactive disk.

11. The circuit of claim 10,

wherein said first and second switching devices comprise first and second transistors.

12. The circuit of claim 11,

wherein said oscillating driving device comprises a dual output gate driver having an input pin, an inverting output pin and a non-inverting output pin;

said inverting output pin being connected to a gate of said first transistor;

said non-inverting output pin being connected to a gate of said second transistor; and

an oscillator having an output pin for transmitting an oscillating voltage signal, said output pin of said oscillator being electrically connected to said input pin of said oscillating driving device.

13. The circuit of claim 12,

wherein said oscillator comprises a trigger pin and a threshold pin, a resistor and a capacitor;

said trigger pin being electrically connected to said threshold pin;

said resistor being connected between said trigger pin and said output pin;

said capacitor having a grounded first end and a second end connected between said resistor and said threshold pin.

14. The circuit of claim 13, further comprising:

a feedback subcircuit having an input side and an output side;

said input side of said feedback subcircuit being electrically connected to said high voltage connection and said low voltage connection of said electro-luminescent device

said output side of said feedback subcircuit being connected to said threshold pin of said oscillator.

15. The circuit of claim 14, further comprising:

a dimmer electrically connected between said first electroded major face of said first output electroactive disk and said high voltage connection of said electro-luminescent device.

16. The circuit of claim 14, further comprising:

a dimmer electrically connected between said voltage source and said first and second inductors.

17. The circuit of claim 16,
wherein said feedback subcircuit comprises a subcircuit selected from the group consisting of voltage sensing, current sensing, phase sensing and combinations thereof.